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Interoperability of Innovative Capabilities Enabled by OpenROADM MSA to be Demonstrated at OFC 20 in San Diego, CA on March 10, 2020

At this year's Optical Networking and Communication (OFC) Conference and Exhibition, OpenROADM MSA (Multi-Source Agreement) members will demonstrate optical network equipment elements from six suppliers that seamlessly interoperate by means of the public OpenROADM MSA standards defined for both optical data plane and control plane. Participants include AT&T, Ciena, Cisco, ECI, Fujitsu, Infinera, Juniper, and Orange together with the University of Texas at Dallas developers.

This collaborative effort aims to showcase the optical interoperability that under OpenROADM can be achieved between transponders, flexponders, OTN (Optical Transport Network) switches, optical amplifiers, and ROADMs.

The implemented optical data plane specifications are available on the OpenROADM.org download page along with the YANG data models that define the control plane interoperability APIs (Application Programming Interface). Combined, these features enable easy plug-and-play of different supplier's hardware.

"Through the use of the OpenROADM MSA published standards (http://OpenROADM.org), optical networking equipment can now be built to achieve commonly agreed-upon interoperability between multiple suppliers," says Dr. Martin Birk, Director, Optical Platform, AT&T. "This is a significant milestone considering that historically fiber optic networks have been predominantly based on proprietary single-supplier solutions."

Single-supplier solutions do not offer commonly defined interoperability functions inside their domain. The introduction of the OpenROADM standards has allowed the integration process required to operate a multi-supplier scenario to be possible.

The development cycle of ROADMs (Reconfigurable Optical Add/Drop Multiplexers) inside the network can be shortened, thus encouraging and favoring competition and innovation. The OpenROADM project has, at its core, the drive towards faster pace innovation and competition, as well as increased volumes through mass adoption, coupled with optical layer flexibility and software control.

"As a founding member and key contributor to OpenROADM MSA, Ciena is leading the optical industry in building open, scalable, and programmable networks that accelerate our customers on their digital journey," says Brodie Gage, Vice President of Product Line Management, Ciena.

"OpenROADM standardization is important to enable more flexible, manageable and open networks while also offering customers a choice amongst the multi-supplier and best of breed platforms" says Ronald Johnson, Senior Director of Optical Product Line Management, Cisco.

"Optical networking is evolving to meet the needs of a diverse community. Being part of the OpenROADM movement attunes well with our goal to offer customers various levels of flexibility in the design, planning and management of their optical networks," says Kevin Driscoll, head of the Ribbon-ECI North American packet optical team. "Ribbon-ECI's optical networking 'As You Like It' approach, ensures that every customer can choose a solution that meets their needs - whether they are looking for an 'all in one' solution, or to 'mix and match', best of breed components from a variety of vendors.

"As a founding member of the Open ROADM MSA, Fujitsu is committed to furthering the principles of open networking and programmability that enable faster technology deployment with interoperable systems, resulting in increased network scalability, savings, and performance," says Rod Naphan, CTO & deputy head of the Network Products Business Group at Fujitsu, Ltd. "With our innovative Open ROADM solutions and interoperability expertise, Fujitsu promotes excellence through competition; advancing disaggregated hardware and multi-vendor software models compatible with telecommunication carriers' planning, deployment and operation practices."

"For a very long time the multi-vendor interoperability in the world of the optical networking was confined to the interop between two client interfaces. Thanks to the effort of OpenROADM community the industry is now armed with a set of agreements that vendors can employ to build truly interoperable and flexible modular platforms and tools," says Zeljko Bulut, Senior Director, Product Line Management at Infinera.

"Optical networks have had to deal with proprietary control and application layers for decades, which has come at a cost to the operator while providing little to no flexibility. Opening the optical layer with initiatives such as OpenROADM will unlock innovation in the optical layer and the integration of IP + Optical. With continued traction and focus, we will see open-line ecosystems thrive while creating new avenues for multilayer architectures to evolve and accelerate automation and machine learning at all layers of the network. It is exciting to watch how innovation will reshape this paradigm over the coming years," says Amit Bhardwaj, Director, Product Management, Juniper Networks.

Also demonstrated at the OFC Conference and Exhibition will be an open source SDN (Software Defined Network) controller called TransportPCE – available as part of the OpenDaylight distribution – that natively supports OpenROADM-compliant network elements through the APIs defined in and published by the OpenROADM MSA.

"TransportPCE demonstrates how a collaborative development can help accelerate innovation. By leveraging the OpenDaylight Magnesium platform TransportPCE extends its coverage from the WDM

layer to also include the OTN layer with the goal of providing a reference implementation for the control of optical infrastructures based on OpenROADM," says Olivier Renais, Optical Network Architect at Orange.

Through its northbound RESTCONF interface, the TransportPCE controller communicates with the UT Dallas PROnet (Programmable Optical Network) SDN orchestrator which provides a single point of control and coordination of resources across three domains, namely the optical layer, Ethernet layer, and datacenter compute nodes. The PROnet orchestrator automatically and sequentially initiates actions that are required to execute datacenter backups, massive VM (Virtual Machine) live migrations, and other applications that require the high-rate and low-latency data transfer provided by OpenROADM equipment. While the OpenROADM network products that are integrated into this demo are already in use by network operators in their live networks, this is by far the largest public interoperability demonstration of the key and innovative capabilities that are enabled by the OpenROADM MSA.